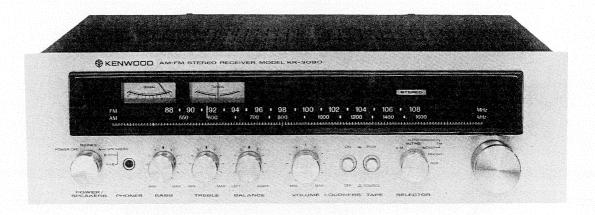


SERVICE MANUAL

KR-2090 KR-3090



AM-FM STEREO RECEIVER



CONTENTS

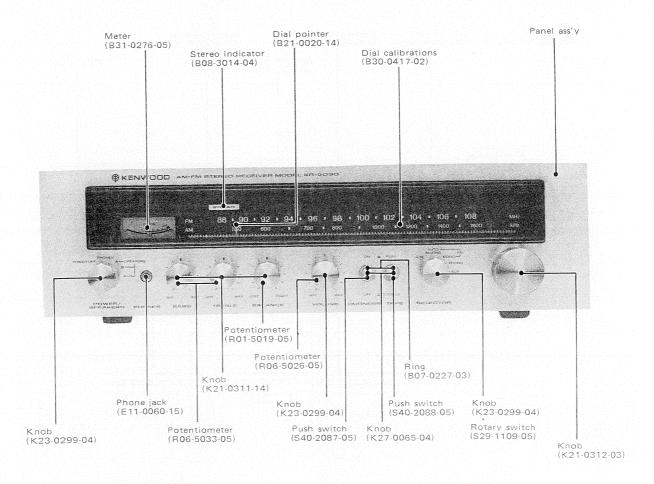
EXTERNAL VIEW (KR-2090)	3
EXTERNAL VIEW (KR-3090)	4
INTERNAL VIEW	5
DIAL CORD STRINGING	5
DISASSEMBLY FOR REPAIR	6
BLOCK & LEVEL DIAGRAM (KR-2090)	7
BLOCK & LEVEL DIAGRAM (KR-3090)	
DESTINATIONS' PARTS LIST	9
PARTS LIST	10
ADJUSTMENT	14
ABSOLUTE MAX. RATINGS	15
PC BOARD	16
SEMICONDUCTOR SUBSTITUTIONS	17
SCHEMATIC DIAGRAM (KR-2090)	18
SCHEMATIC DIAGRAM (KR-3090)	19
SPECIFICATIONS	20

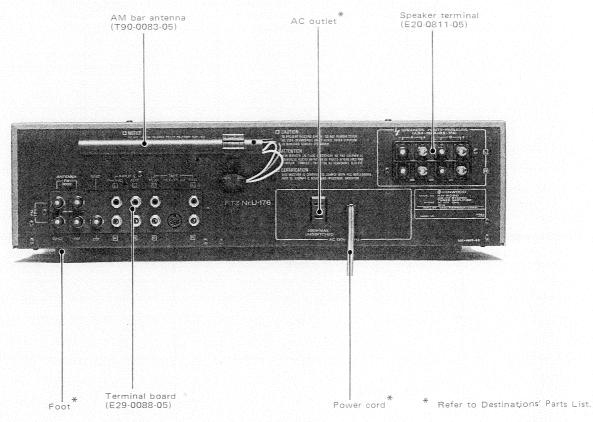
Note:

The products are subject to modification in components and circuits in different countries and regions. This is because each product must be used under the best condition. This manual provides information of modification based on the standard in the U.S., for the convenience of ordering associated components and parts.

U.S.A						i								۰				K
Canada												۰						P
PX					÷											i.		U
Australia																٠		X
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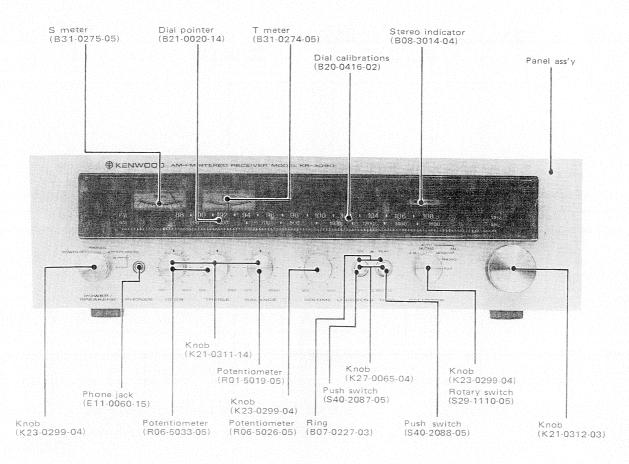
EXTERNAL VIEW(KR-2090)

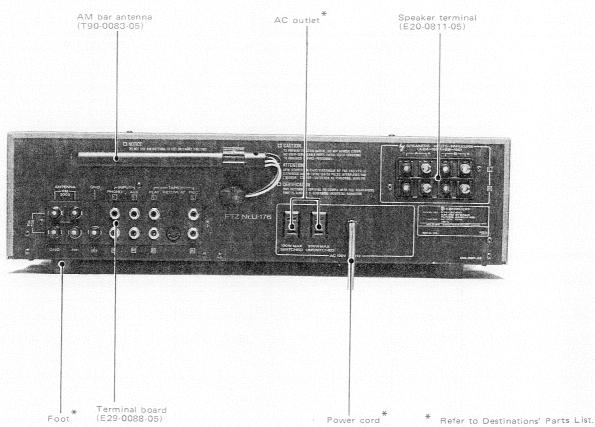




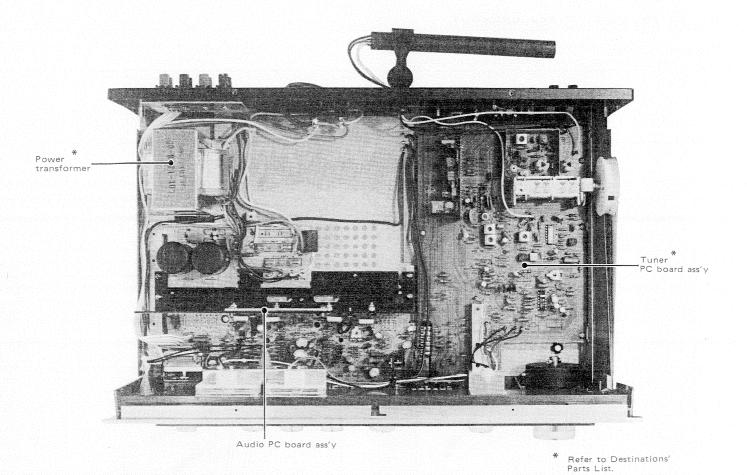


EXTERNAL VIEW(KR-3090)





INTERNAL VIEW/DIAL CORD STRINGING



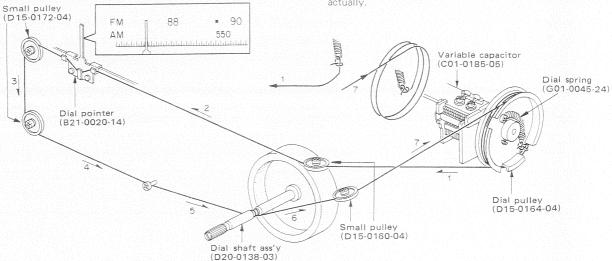
DIAL CORD STRINGING

- 1. Fully close the variable capacitor.
- 2. Set the dial pulley as illustrated, and fix it with a screw.
- 3. Tie the end of the dial cord at the dial spring, giving a margin of about 10 cm.
- 4. Hook the spring on the boss.
- 5. Dress the dial cord in the direction of "1" to "5", and wind it 2 turns around the dial shaft counterclockwise.
- 6. Dress the dial cord in the direction of "6" to "7", and wind it

two and half turns around the dial pulley starting from its upper side

Photo is KR-3090.

- 7. Tie the dial cord rigidly with the margin cord (about 10 cm, described in 3, above) without permitting any slack.
- 8. Cut off the unnecessary part of the cord, and release the dial spring from the boss.
- Mount the dial pointer in position as illustrated. This setting should be checked by receiving a suitable broadcast station actually.

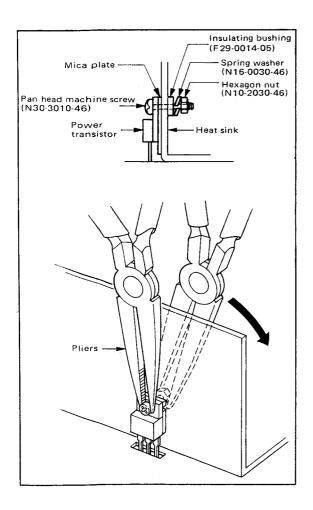


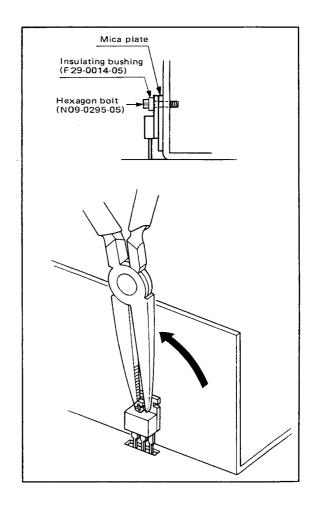


DISASSEMBLY FOR REPAIR

POWER TRANSISTOR REPLACEMENT

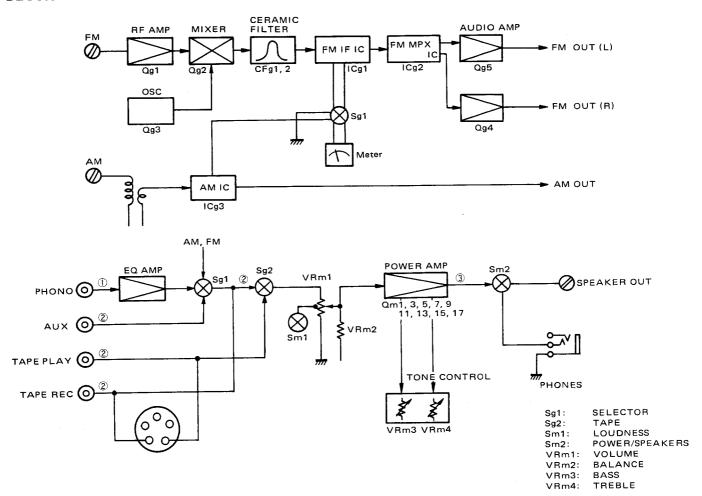
There are two way of fixing the power transistors as illustrated. The power transistor can be removed by using the pliers.



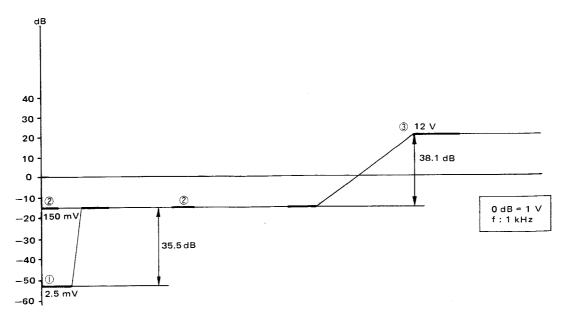


BLOCK & LEVEL DIAGRAM(KR-2090)

BLOCK DIAGRAM



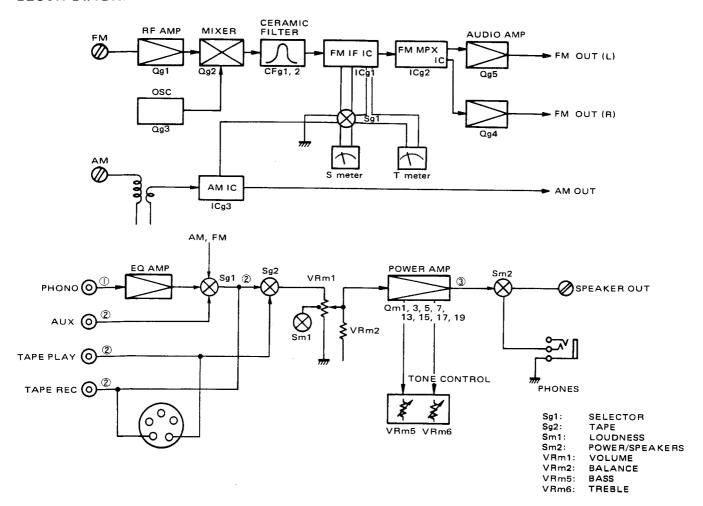
LEVEL DIAGRAM



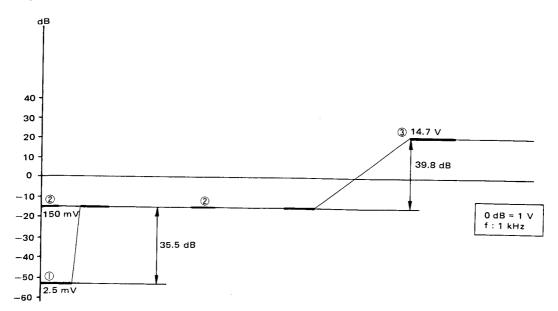


BLOCK & LEVEL DIAGRAM(KR-3090)

BLOCK DIAGRAM



LEVEL DIAGRAM



DESTINATIONS' PARTS LIST

																		\neg		
	Description	Panel ass'y ☆	Warranty card Instruction manual *2	Switch stopper (Voltage selector)	AC outlet DIN type coaxial connector plug Power cord	Carton box & Polyethylene cover Anti-rust paper	Foot X 4 Power cord bushing Power cord band	Power transformer 🜣	Slide switch (Voltage selector)	Tuner PC board ass'y ☆ Audio PC board ass'y ☆	Panel ass'y 🌣	Warranty card Instruction manual ☆	Switch stopper (Voltage selector)	AC outlet X 2 DIN type coaxial connector plug Power cord	Carton box & Polyethylene cover Anti-rust paper	Foot X 4 Power cord bushing Power cord band	Power transformer 🌣	Slide switch (Voltage selector)	Tuner PC board ass'y 🌣 Audio PC board ass'y 🜣	
	Other Area (M)	A20-1259-03	B50-1712-00	D32-0075-04	E03-0008-05	H01-1788-04 H20-0416-04 H40-0004-04	J02-0089-05 J41-0034-05	L01-1515-05	S31-2001-05	X05-1540-82 X09-1280-81	A20-1256-03	 B50-1709-00	D32-0075-04	E03-0008-05 E30-0545-05	H01-1775-04 H20-0416-04 H40-0004-04	J02-0089-05 J41-0034-05 —	L01-1505-05	S31-2001-05	X05-1540-81 X09-1290-81	
	South Africa (S)	A20-1259-03	B50-1710-00	D32-0075-04	E03-0008-05	H01-1788-04 H20-0394-04	J02-0089-05 J41-0024-15	L01-1515-05	S31-2001-05	X05-1540-62 X09-1280-81	A20-1256-03	B50-1707-00	D32-0075-04	E03-0008-05 E30-0602-05	H01-1775-04 H20-0394-04	J02-0089-05 J41-0024-15 —	L01-1505-05	\$31-2001-05	X05-1540-61 X09-1290-81	
	England (T)	A20-1260-03	B46-0060-00 B50-1711-00	ı	E04-0004-05 E30-0602-05	H01-1790-04 H20-0394-04	J02-0089-05 J41-0024-15 —	L01-1517-05	I	X05-1540-62 X09-1281-71	A20-1257-03	B46-0060-00 B50-1708-00	1	E04-0004-05	H01-1777-04 H20-0394-04	J02-0089-05 J41-0024-15	L01-1507-05	ı	X05-1540-61 X09-1291-71	
	Scandinavia (L)	A20-1259-03	B50-1710-00	D32-0075-04	E04-0004-05 E30-0292-05	H01-1788-04 H20-0394-04	J02-0089-05 J41-0033-05 J61-0038-05	L01-1516-05	\$31-2001-05	X05-1540-62 X09-1280-61	A20-1256-03	B50-1707-00	D32-0075-04	_ E04-0004-05 E30-0292-05	H01-1775-04 H20-0394-04	J02-0089-05 J41-0033-05 J61-0038-05	L01-1506-05	831-2001-05	X05-1540-61 X09-1290-61	
	Europe (W)	A20-1259-03	B50-1710-00	D32-0075-04	E04-0004-05	H01-1788-04 H20-0394-04	J02-0089-05 J41-0033-05	L01-1516-05	S31-2001-05	X05-1540-62 X09-1280-61	A20-1256-03	B50-1707-00	D32-0075-04	E04-0004-05 E30-0459-05	H01-1775-04 H20-0394-04	J02-0089-05 J41-0033-05	L01-1506-05	S31-2001-05	X05-1540-61 X09-1290-61	
	Australia (X)	A20-1259-03	B46-0064-00 ² B50-1710-00	D32-0075-04	E03-0008-05 - E30-0185-05	H01-1788-04 H20-0394-04	J02-0089-05 J41-0024-15	L01-1515-05	S31-2001-05	X05-1540-62 X09-1280-81	A20-1256-03	B46-0064-00 B50-1707-00	D32-0075-04	E03-0008-05	H01-1775-04 H20-0394-04	J02-0089-05 J41-0024-15 	L01-1505-05	831-2001-05	X05-1540-61 X09-1290-81	
	Canada (P)	A20-1259-03	B46-0055-20 B50-1712-00	1	E03-0008-05 - E30-0181-05	H01-1789-04 H20-0394-04 -	J02-0089-05 J41-0034-05	L01-1518-05	1	X05-1540-11 X09-1281-01	A20-1256-03	B46-0055-20 B50-1709-00	ı	E03-0008-05	H01-1776-04 H20-0394-04	J02-0089-05 J41-0034-05	L01-1508-05	ı	X05-1540-10 X09-1291-01	
: New Parts	U.S.A. (K)	A20-1259-03	B46-0061-10 B50-1710-00	1	E03-0008-05	H01-1788-04 H20-0394-04	J02-0088-05 J41-0034-05	L01-1511-05	ı	X05-1540-11 X09-1280-10	A20-1256-03	B46-0061-10 B50-1707-00	l	E03-0008-05	H01-1775-04 H20-0394-04	J02-0088-05 J41-0034-05	L01-1501-05	ı	X05-1540-10 X09-1290-10	
⇔ : Ne	Ref. No.	1	1 1	ı		1 1 1	1 1 1	ı	1	1 1	1	1 1	l	1 1	111		1	ı	1 1	
Ī	Model	KB-2090											0608	KB-3	-]		

-2090,3090

PARTS LIST

R: New parts

RD: Carbon film resistor

RC: Carbon composition resistor

RW: Wire wound power resistor

RN: Meter film resistor

RS: Metal oxide film resistor

KR-2090 TOTAL

Ref. No.	Parts No.	Description	Re- marks
	N	/ISCELLANEOUS	
_	A01-0335-03	Case	
-	A30-0136-05	Dial back board ass'y	ជា
1		· ·	
-	B01-0115-02	Dial escutcheon	
	B07-0227-03	Ring X 2 (push switch)	ļ
_	B08-3014-04	Stereo indicator	İ
-	B20-0417-02	Dial calibrations	☆
-	B21-0020-14	Dial pointer	
-	B30-0132-05	Pilot lamp 8V, 300mA (Black)	
-	B30-0147-05	Pilot lamp 8V, 300mA (White)	
-	830-0149-05	Pilot lamp 8V, 50mA	☆
_	B31-0276-05	Meter	☆
_	D15-0160-04	Small pulley X 2	
-	D15-0164-04	Dial pulley	
_	D15-0172-04	Small pulley X 2	
_	D20-0138-03	Dial shaft ass'y	
	C01 0045 04		
_	G01-0045-24	Dial spring	
_	G01-0358-04	Spring X 2 (push switch)	
_	H10-1508-02	Polystyrene foamed fixture	
_	H10-1509-02	Polystyrene foamed fixture	
_	H25-0078-00	Instruction bag	
_	J19-0306-05	Lead holder X 2	
-	J19-0506-05	PC board supporter X 2	
_	J19-0507-05	Antenna holder	
-	J19-0518-04	Lead stopper board	
-	K21-0311-14	Knob X 3 TONE, BAL	
_	K21-0312-03	Knob TUNING	
-	K23-0299-04	Knob X 3 SEL, VOL, SPKR	
_	K27-0065-04	Knob X 2 Push switch	
_	T90-0083-05	AM bar antenna	l
_	T90-0202-05	FM indoor antenna	j
_	254 0000 14	5. 1 . 1 . 1 . 5	l
_	351-0003-14	Dial string (φ0.5)	

KR-3090 TOTAL

Ref. No.	Parts No.	Description	Re- marks
		MISCELLANEOUS	
_	A01-0355-03	Case	☆
-	A30-0135-05	Dial back board ass'y	☆
_	B01-0115-02	Dial escutcheon	☆
	B07-0227-03	Ring X 2 (push switch)	☆
-	B08-3014-04	Stereo indicator	☆
-	B20-0416-02	Dial calibrations	☆
_	B21-0020-14	Dial pointer	☆
l –	B30-0132-05	Pilot lamp 8V, 300mA(Black)	☆
-	B30-0147-05	Pilot lamp 8V, 300mA (White)	☆
-	B30-0148-05	Pilot lamp 8V, 50mA	☆
-	B31-0274-05	T meter	☆
-	B31-0275-05	S meter	ជ
	l	<u> </u>	1

Ref. No.	Parts No.	Description	Re- marks
l –	D15-0160-04	Small pulley X 2	
	D15-0164-04	Dial pulley	
	D15-0172-04	Small pulley X 2	
_	D20-0138-03 ·	Dial shaft ass'y	☆
_	G01-0045-24	Dial spring	
_	G01-0358-04	Spring X 2 (push switch)	☆
_	H10-1508-02	Polystyrene foamed fixture	☆
-	H10-1509-02	Polystyrene foamed fixture	+
-	H25-0078-00	Instruction bag	
_	J19-0306-05	Lead holder X 2	
-	J19-0506-05	PC board supporter X 2	
_	J19-0507-05	Antenna holder	
-	J19-0518-04	Lead stopper board	
_	K21-0311-14	Knob X 3 TONE, BAL	
- 1	K21-0312-03	Knob TUNING	
_ _ _	K23-0299-04	Knob X 3 SEL, VOL, SPKR	
	K27-0065-04	Knob X 2 Push switch	
-	T90-0083-05	AM bar antenna	
_	T90-0202-05	FM indoor antenna	
_	351-0003-14	Dial string	

TUNER (X05-1540-)

Ref. No.	Parts No.	D	escription		Re- marks
		CAPACITOR			
Cg1	CC45SL1H150K	Ceramic	15pF	± 10%	
Cg2	CK45F1H103Z	Ceramic	0.01μF	+80%,-20%	
Cg3	CC45SL1H100D	Ceramic	10pF	±0.5pF	
Cg4	CC45SL1H221K	Ceramic	220pF	± 10%	i
Cg5	CK45F1H103Z	Ceramic	0.01μF	+80%,-20%	
Cg6	CC45PG1H220J	Ceramic	22pF	± 5%	
	(Lg4:L32-0187-09				
	CC45RG1H220J		22pF	±5%	
	(Lg4:L32-0210-09				
Cg7	CC45SH1H080D	Ceramic	8pF	±0.5pF	
Cg8	C91-0037-05	Low capacit	ive 0.47	οF	
Cg9	CC45CH1H150K	Ceramic	15pF	± 10%	
Cg10	CC45CH1H390K	Ceramic	39pF	± 10%	
Cg11~14	CK45F1H103Z	Ceramic	$0.01 \mu F$	+80%,-20%	
Cg15	CE04W1E4R7CC				
Cg16	CE04AW1HR47N	ICC Electroly	tic 0.47	ιF 50W∨	
Cg17	CK45F1H473Z	Ceramic	$0.047 \mu F$	+80%,-20%	
Cg18	CC45SL1H101K	Ceramic	100pF	± 10%	
Cg19~21	CK45F1H103Z	Ceramic	0.01µF	+80%,-20%	
Cg22, 23	CK45F1H473Z	Ceramic	0.047µF	+80%, -20%	
Cg24	CE04W1H010CC	Electrolytic	1μF	50W∨	
Cg25	CC45UJ1H180K	Ceramic	18pF	± 10%	
Cg26	CQ09FS1H361J	Polystyrene	360pF	± 5%	
Cg27	CK45F1H103Z	Ceramic	0.01μF	+80%, -20%	
Cg28	C90-0245-05	Semiconduc		eramic	
			0.01μF	± 20%	
Cg29, 30	CK45F1H103Z	Ceramic	0.01μF	+80%,-20%	
Cg31	CC45SL1H470K	Ceramic	47pF	± 10%	
Cg32	CE04W1C100CC	Electrolytic	10μF	16WV	
Cg33	CE04W1H010CC	Electrolytic	1μF	50W∨	
Cg34	CK45B1H102K	Ceramic	1000pF	± 10%	
Cg35, 36	C90-0245-05	Semiconduct	or type c	eramic	
			0.01μF	± 20%	
Cg37	CQ93M1H104M	Mylar	0.1μF	±20%	
Cg38	C90-0245-05	Semiconduct	,		i
1			0.01μF	±20%	l
Cg39	CE04W1C100CC	Electrolytic	10μF	16W∨	

PARTS LIST

Cg40	Ref. No.	Parts No.	Description	Re- marks					
Cg41 CCD3MM1H473K Mylar 0.047μF ±10% Cg45 CE04AW1HR47MCC Electrolytic 0.47μF 50WV Cg46 CE04AW1HR47MCC Electrolytic 0.47μF 50WV Cg47 CE04AW1HR47MCC Electrolytic 0.247μF 50WV Cg48, 49 CQ93M1H223J Mylar 0.033μF ±5% Cg50, 51 CQ93M1H272K Mylar 2009F ±10% Cg52, 53 CK45B1H391K Mylar 2700pF ±10% Cg56, 57 CE04W1H010CC Electrolytic µµF 50WV Cg66, 67 CE04W1H010CC Electrolytic µµF 50WV Cg66, 67 CC45SL1H101K Ceramic 100pF ±10% Cg66, 67 CC45SL1H320K Ceramic 100pF ±10% Cg68, 69 CQ93M11432J CC44W14010CC Electrolytic 100pF ±10% Cg72, 73 CE04W1E470CC CE04W1E470CC CC64W1E330CC Electrolytic 120pF ±5% Cg74, 75 CE04	Ca40	CO00ES1H471	Polystyrene 470nF +5%						
C942-44 CEO4W1C100CC Electrolytic 10µF 16WV CE04AW1HR47MCC Electrolytic 0.47µF 50WV C948, 49 CQ93M1H33J Mylar 0.032µF ±5% (X05-1540-10, -11, -81, -82) Mylar 0.02µF ±5% (X05-1540-61, -62) Mylar 0.02µF ±5% (X05-1540-61, -62) Mylar 0.02µF ±10% Ce05A, 55 CC93M1H272K CQ95A, 55 CC94W1H010CC Electrolytic 1µF 50WV CQ60-63 CC45SL1H10K Ceramic 30µF ±10% CQ66, 67 CQ93M1H23J CQ93M1H23J CQ93M1H23J CQ93M1H23J CQ93M1H23J CQ93M1H23J CQ93M1H23J CQ93M1H23J CQ93M1H33J CQ93M1H33J CQ93M1H33J CQ93M1H33J CQ93M1H33J CQ93M1H33J CQ94W1610CC CE04W1610CC CE04W1610CC CE04W1630CC CE04W1610CC CE04W1630CC CE04W1630CC CE04W1640CC CE04W1640CC CE04W1640CC CE04W1630CC CE04W1640CC CE04	· '								
Cg45 CE04AW1HR42MCC Electrolytic 0.47μF 50WV CE04AW1HR22MCC Electrolytic 0.47μF 50WV CE04AW1HR47MCC Electrolytic 0.47μF 50WV CE04BW1H47CA CE04W1H47CA CE04W1H47CA CE04W1H47CA CHAPTER SOW CE04BW1H47CA CE04BW1H47	_								
Ceg46 CE04AW1HR22MCC Electrolytic 0.47µF 50WV CQ48, 49 CQ93M1H333J Mylar 0.033µF ±5% (X05-1540-10, -11, -81, -82) Mylar 0.02µF ±5% (X05-1540-16, -162) Mylar 0.02µF ±5% (X05-1540-16, -162) Mylar 0.02µF ±10% Cq50, 51 CQ93M1H272K Cq54, 55 CC44SH193P1K Cq54, 55 CC44SH193P1K Cq54, 55 CC44W11010CC Ceramic 390pF ±10% Cq64, 65 CC44W141010CC Cq66, 67 CC45SL1H101K Cq64, 65 CQ93M1H273M Cq64, 65 CQ93M1H273M Cq64, 65 CQ93M1H23J Cq70, 71 CQ93M1H33J Cq74, 75 CC64W11010CC CE64W11010CC CE64W11010CC CC64W11010CC CC64W110				ļ					
Cg47 (2948) CE01AWNHR47MCC Electrolytic 0.47μF 50WV CO93M1H333J Mylar 0.033μF ±5% (X05-1540-10, -11, -81, -82) Mylar 0.022μF ±5% (X05-1540-10, -11, -81, -82) Mylar 0.022μF ±5% (X05-1540-10, -11, -81, -82) Mylar 0.022μF ±5% (X05-1540-61, -62) Mylar 2700pF ±10% C95, -59, -50, -50, -50, -50, -50, -50, -50, -50									
Cg48, 49 CQ93M1H333J (Nylar (No5-1540-10, -11, -81, -82) (No5-1540-10, -11, -81, -82) (Nylar (No5-1540-16, -62) (No5-1540-16, -62) Cg50, 51 CQ93M1H272K (No5-1540-16, -62) (No5-1540-16, -62) (No5-1540-16, -62) (No5-1540-16, -62) Cg50, 53 CC45B1H391K (No5-1540-16, -62) (No5-1540-16, -62) (No5-1540-16, -62) (No5-1640-16) Cg56, 57 CC94W1H010CC (No5-16, -62) (No5-1640-16) (No5-1540-16, -62) (No5-1640-16) Cg66, 67 CC45S1H20CK (No5-1640-16) (No5-1540-10, -61, -81) Cg70, 71 CQ93M1H332J (No5-1540-10, -61, -81) (No5-1540-10, -61, -81) Cg74 CE04W1E470CC (No5-1540-10, -61, -81) (No5-1540-10, -61, -81) Cg75 CC04W1E470CC (No5-1540-10, -61, -81) (No5-1540-10, -61, -81) Cg76 CC45S1-1H150K (No5-1540-10, -61, -81) (No5-1540-10, -61, -81) Cg77 CC45S1-1H103C (No5-1540-10, -61, -81) (No5-1540-10, -61, -81) Cg76 CC45S1-1H103C (No5-1540-10, -61, -81) (No5-1540-10, -61, -81) Cg77 CC45S1-1H103C (No5-1540-10, -61, -81) (No5-1540-10, -61, -81) Cg70 CX45S1-14103C (No5-1540-10, -61, -81) (No5-1540-10, -61, -81) Rg91 No5-1040-10, -61, -81 (No5-1540-10, -61, -81)	Cg46								
Cg48, 49 CQ93M1H223J (X05-1540-10, -11, -81, -82) (X05-1540-61, -62) Cg50, 51 CQ93M1H272K (Cg52, 53 CK4581H391K (Cg54, 55 CQ93M1H272K (Cg56, 57 CE04W1H010CC Electrolytic 1µF 50WV (Cg58, 59 CE04W1H010CC (Ceramic 100pF ±10% (Cg66, 67 CC458L1H101K (Cg64, 65 CC94W1H301CC (Ceramic 22pF ±10% (Cg66, 67 CC458L1H20K (Cg66, 67 CC458L1H20K (Cg66, 67 CC458L1H320K (Cg67, 72 C93M1H32J (Ceramic 22pF ±10% (Cg67, 72 C93M1H32J (Ceramic 22pF ±10% (Cg77, 73 CE04W1F010CC (Ceramic 22pF ±10% (X05-1540-10, -61, -81) (Ceramic 33pp ±5% (Ceramic 15pf ±10% (Ceramic 15pf ±10% (Ceramic 15pf ±10% (Ceramic 0.01µF ±80%,-20% (Ceramic 0	Cg47	CE04AW1HR47N							
Cg48, 49	Cg48, 49	CQ93M1H333J							
Cg50, 51 CQ93M1H272K CG952, 53 CK45B1H391K Cg64, 55 CQ93M1H272K Mylar 2700pF ±10% Cg65, 57 CG94W1H010CC Ceramic 390pF ±10% Cg66, 67 CC45SL1H101K Ceramic 100pF ±10% Cg66, 66 CG45SL1H101K Ceramic 100pF ±10% Cg66, 66 CG45SL1H20K Ceramic 22pF ±10% Cg68, 69 CQ93M1H32J Cg72, 73 CG93M1H32J CG72, 73 CG94W1H010CC Ceramic 22pF ±10% CG74 CE04W1H23J CG74, 75 CE04W1H23J CG77, 71 CG94W1H23J CG77, 77 CG94W1H23J CG77, 75 CE04W1H23J CG77, 75 CE04W1E3JOCC CE04W1E3JOCC CE04W1E3JOCC CG74 CC45SL1H26K CG77, 76 CE04W1E3JOCC CG74 CC45SL1H150K CG77, 77 CG94W1E3JOCC CG74 CC45SL1H150K CG77, 77 CG94W1E3JOCC CG74 CC45SL1H150K CG77, 77 CG94W1E3JOCC CG74 CC45SL1H150K CG77, 77 CG94W1C100CC CG76			(X05-1540-10, -11, -81, -82)						
Cg50, 51 CQ93M1H272K Cg45, 53 CK45B1H391K Ceramic 390pF ±10% C94, 55 CQ93M1H272K Cg66, 57 CG64W1H010CC Electrolytic IµF 50WV Cg66-63 CC45SL1H101K Ceramic 100pF ±10% Cg66, 67 CC45SL1H220K Ceramic 100pF ±10% Cg68, 69 CQ93M1H123D Cg74, 73 CG93M1H332J Cg72, 73 CG94W14010CC CE04W18330CC CE04W18470CC CE04W1847	Cq48, 49	CQ93M1H223J	Mylar 0.022µF ±5%						
Cg50, 51 CQ93M1H272K Cg45, 53 CK45B1H391K Ceramic 390pF ±10% C94, 55 CQ93M1H272K Cg66, 57 CG64W1H010CC Electrolytic IµF 50WV Cg66-63 CC45SL1H101K Ceramic 100pF ±10% Cg66, 67 CC45SL1H220K Ceramic 100pF ±10% Cg68, 69 CQ93M1H123D Cg74, 73 CG93M1H332J Cg72, 73 CG94W14010CC CE04W18330CC CE04W18470CC CE04W1847	,		(X05-1540-61, -62)						
Cg52, 53 CK45B1H391K Cg54, 55 CQ3M1H272K Cg56, 57 CE04W1H010CC Cg68, 59 CC45SL1H101K Cg64, 65 CC04SSL1H101K Cg64, 65 CC04W1A101CC Cg66, 67 CC45SL1H101K Cg76, 71 CQ3M1H32J Cg72, 73 CE04W1H010CC Cg74 CC09M1H33J Cg74, 75 CE04W1E330CC Cg74 CC45SL1H100K Cg77-7-79 CC04W1E330CC Cg76 CC45SL1H100K Cg77-7-79 CE04W1E30CC Cg76 CC45SL1H100X CG88-10 CC45SL1H100X CG89 CC64W1C100CC RESISTOR Rg9, 10,34 RD14GY2E301J Flame-proof RD 100Ω ±5% 1/4W Flame-proof RD 390Ω ±5% 1/4W Flame-proof RD 100Ω ±5% 1/4W Flame-proof RD 390Ω ±5% 1/4W Flame-proof	0-E0 E1	CO02M1H272K	Mylar 2700pF ±10%						
CQ54, 55 CQ93M1H272K Electrolytic 1µF 50WV CQ58, 59 CQ64S1H1010CC CQ66, 67 CC4SS1H101CC CQ766, 67 CC4SS1H122K CQ77, 73 CQ93M1H123J CQ77, 71 CQ93M1H332J CQ74 CQ93M1H332J CQ75 CC64W1E330CC CC64W1E330CC CC64W1E330CC CC64W1E330CC CC77 CC64W1E330CC CQ76 CC64W1E330CC CC77 CC64W1E330CC CQ76 CC64SS1H150K CQ77 CC64SS1H150K CQ77 CC45S1H150K CC45K150K CQ77 CC45K150K150K CQ77 CC45K150K150K CQ77 CC45K150K CQ77 CC45K150K150K CQ77 CC45K150K150K CQ77	1		,						
Cg55, 57 CE04W1H010CC Electrolytic 1μF 50WV Cg56, 59 CS15E1A2R3MCC Tantalum 3.3μF 10WV Cg60-63 CC45SL1H101K Electrolytic 100μF 110% Cg66, 67 CC45SL1H220K Ceramic 22μF ±10% Cg68, 69 CC93M1H132J Mylar 300pF ±5% Cg70, 71 CC93M1H332J Mylar 300pF ±5% Cg74 CE04W11010CC CE04W1122CC Electrolytic 33μF 25WV Cg74 75 CE04W1E470CC (X05-1540-10, -61, -81) Electrolytic 47μF 25WV Cg76 CC45SL1H150X (X05-1540-10, -61, -81) Electrolytic 27W 25WV Cg77-79 CK45F1H03Z Ceramic 15pF ±10% 25WV Cg80 CE04W1C100CC Ceramic 15pF ±10% Rg38 RD14GY2E30JJ Flame-proof RD 100Ω ±5% 1/4W Rg38 RD14GY2E39JJ Flame-proof RD 100Ω ±5% 1/4W Rg77 RD14GY2E39									
C958, 59 CS15E1ASR3MCC Tantalum 3.3μF 10WV C960, 65 CC45SL1H101K Ceramic 100pF ± 10% C968, 69 CC45SL1H220K Ceramic 22pF ± 10% C970, 71 CQ93M1H32J CQ70, 71 CQ93M1H33J Mylar 3300pF ± 5% C974 CE04W1H010CC Electrolytic 13µF ≥ 5WV C975 CE04W1E30CC Electrolytic 13µF ≥ 5WV C975 CE04W1E470CC (X05-1540-10, -61, -81) Electrolytic 23µF ≥ 5WV C976 CC45SL1H150K Cyrob-1540-10, -61, -81) Electrolytic 25WV C976 CC45SL1H150K Ceramic 15pF ± 10% C977~79 CK45F1H103Z Ceramic 15pF ± 10% C980 RD14GY2E101J Flame-proof RD 100Ω ± 5% 1/4W R938 RD14GY2E101J Flame-proof RD 100Ω ± 5% 1/4W R938 R95 D RS14GB3A12JJ RS 14MW Flame-proof RD 39Ω ± 5% 1/4W R977 <td></td> <td>CQ93WTH272K</td> <td></td> <td> </td>		CQ93WTH272K							
Cg60-63 Cg66, 67 Cg66, 67 Cg66, 67 Cg66, 67 Cg66, 67 Cg74 Cc45SL1H220K Cg66, 67 Cg93M1H123J Cg72, 73 Cg03M1H133J Cg72, 73 CE04W1E3300C Cg74 Mylar Cg04W1E3300C CE04W1E3300C CE04W1E3300C Cg74 3300F Electrolytic 33µF Electrolytic 33µF Cg76 25WV (X05-1540-10, -61, -81) Cg76 Cg74 CE04W1E470CC Cg74 Electrolytic 220µF (X05-1540-10, -61, -81) 25WV (X05-1540-10, -61, -81) Cg76 Cg76 Cg76 Cg76 Cg77~ 79 CK45F1H103Z Cg80 CC45SL1H150K Cg77~ 79 CK45F1H103Z Cg80 Ceramic 15pF ± 10% Ceramic 0.01µF +80%, -20% Electrolytic 10µF 16WV RESISTOR Rg9, 10,34 Rg38 Rg14GY2E30J Rg55 Rg14GS3A12J Rg77 Rg14GY2E30J Rg77 Rg14GY2E30J Rg77 Flame-proof RD 100Ω ± 5% 1/4W Flame-proof RD 33Ω ± 5% 1/4W Flame-proof RD 30Ω± 5% 1/4W Flame-proof RD 100Ω ± 5% 1/4W Flame-proof RD 100Ω ± 5% 1/4W (X05-1540-10, -61, -81) SEMICONDUCTOR Qg1 V03-0098-05 V01-0190-05 FET V01-0190-05 25K61 (Y), (GR) Transistor 2SC535(B) Transistor 2SC342(A), (B) Transistor 2SC342(A), (B) Transistor 2SC440(E) V1-0271-05 V1-0076-05 FET V1-0271-05 V1-0076-05 1S1555 (X05-1540-10, -61, -81) Dg1~5 V11-0076-05 V11-0076-05 V11-0076-05 IC HA1156W (B) V2-14-14-14-15-14-14-16-15-14-14-16-18-16-18-16-18-16-18-16-18-18-18-18-18-18-18-18-18-18-18-18-18-		CE04W1H010CC	Electronytic IAF 50000	1					
CB64, 65 CE04W1A101CC Cg66, 67 CC45SL1H123U CG72, 73 CE04W1H010CC CG74 CE04W1E330CC CG74 CE04W1E330CC CG74 CE04W1E330CC CG74 CE04W1E370CC CG74 CE04W1E370CC CG75 CE04W1E470CC CG74, 75 CE04W1E470CC CG76 CC45SL1H150K CG77~ 79 CC45SL1H150K Ceramic 15pF ±10% Ceramic 0.01µF ±80%, -20% Electrolytic 10µF 16WV Ceramic 0.01µF ±80%, -20% Electrolytic 10µF 16WV Electrolytic 25% 1/4W Electrolytic 25%									
Cg66, 67 CC45SL1H220K Ceramic 22pF ± 10% Cg68, 69 CC93M1H123J Mylar 0.012μF ± 5% Cg74 CC93M1H133J Mylar 3300pF ± 5% Cg74 CE04W1E3300C Electrolytic 33μF 25WV Cg75 CE04W1V221CC Electrolytic 22µF 35WV Cg74 75 CE04W1E470CC Electrolytic 22µF 35WV Cg76 CC44SSL1H150K Ceramic 15pF ± 10% Cg77 CK45F1H103Z Ceramic 15pF ± 10% Cg77 CK45F1H103Z Ceramic 0.01μF ±80%, −20% Cg80 CE04W1C100CC Electrolytic 10μF 16WV RESISTOR	Cg60~63	CC45SL1H101K	l						
CQ68, 69 CQ93M1H123J CQ970, 71 CQ93M1H323J Mylar 3300F ± 55% CQ974, 75 CE04W1E330CC Electrolytic 1µF 50WV (X05-1540-10, -61, -81) Electrolytic 220µF 35WV (X05-1540-10, -61, -81) Electrolytic 270µF 270WV 270	Cg64, 65	CE04W1A101CC	= · · · · · · · · · · · · · · · · · ·						
Cq70, 71 Cq93M1H332J Cq72, 73 CE04W1H010CC Electrolytic 1µF 50WV Electrolytic 33µF 25WV (X05-1540-10, -61, -81) Electrolytic 33µF 25WV (X05-1540-10, -61, -81) Electrolytic 220µF 35WV (X05-1540-10, -61, -81) Electrolytic 220µF 35WV (X05-1540-10, -61, -81) Electrolytic 47µF 25WV (X05-1540-11, -62, -82) Ceramic 15pF ± 10% Ceramic 0.01µF +80%, -20% Electrolytic 10µF 16WV 10WV 10W	Cg66, 67	CC45SL1H220K	,						
Cg70, 71 CQ93M1H332J Mylar 3300pF ±5% Cg74 CE04W1H010CC Electrolytic 3JF 25WV Cg74 CE04W1E330CC Electrolytic 3JF 25WV Cg75 CE04W1E470CC Electrolytic 220µF 35WV Cg76 CC45SL1H150K 47µF 25WV Cg77~79 CK45F1H103Z Ceramic 15pF ±10% Cg80 CE04W1C100CC Electrolytic 10µF ±80%, −20% RESISTOR Resistor Resistor Resistor Resistor SEMICONDUCTOR SEMICONDUCTOR SEMICONDUCTOR Cg2 V03-098-05 Transistor 2SC63s(B) Transistor 2SC1342(A), (B) Transistor 2SC4640(E) Cg2 V03-0133-05 Transistor 2SC3s(B) Transistor 2SC4640(E) Cg2 <	Cg68, 69	CQ93M1H123J	Mylar 0.012μF ±5%						
Cg72, 73 CE04W1H010CC CE04W1E330CC CE04W1E330CC CE04W1E330CC CE04W1E330CC CE04W1E330CC CE04W1E330CC CE04W1V221CC Cg75 CE04W1E470CC CE04W1E470CC CE04W1E470CC CE04W1E470CC CE04W1E470CC CE05EL1H150K CK45F1H103Z CE04W1C100CC CEramic 15pF ±10% CE04W1C100CC CEramic 0.01μF +80%, -20% CE04W1C100CC CE04W1C10			Mylar 3300pF ±5%						
Center		1							
Cg75	B .								
Cg75	~, ,								
Cg74, 75	0.75	0504141100166							
Cg74, 75	Cg/5	0204001022100							
CG76	l		1 *****						
Cg76	Cg74, 75	CE04W1E470CC	1						
Cg77~ 79		i							
RESISTOR	1	•	1						
RESISTOR Rg9, 10,34 RD14GY2E101J Flame-proof RD 100Ω ±5% 1/4W Rg38 RD14GY2E330J Flame-proof RD 33Ω ±5% 1/4W Rg55 RS14GB3A121J Rg76 RD14GY2E391J Flame-proof RD 100Ω ±5% 1/4W Rg77 RD14GY2E391J Flame-proof RD 390Ω±5% 1/4W Flame-proof RD 390Ω±5% 1	Cg77~ 79	CK45F1H103Z							
Rg9, 10,34 RD14GY2E101J Flame-proof RD 100Ω ±5% 1/4W Rg38 RD14GY2E330J RS14GB3A121J Rg76 RD14GY2E391J RD14GY2E391J Flame-proof RD 30Ω ±5% 1/4W RS	Cg80	CE04W1C100CC	Electrolytic 10μF 16WV						
Rg9, 10,34 RD14GY2E101J Flame-proof RD 100Ω ±5% 1/4W Rg38 RD14GY2E330J RS14GB3A121J Rg76 RD14GY2E391J RD14GY2E391J Flame-proof RD 30Ω ±5% 1/4W RS									
Rg9, 10,34 RD14GY2E101J Flame-proof RD 100Ω ±5% 1/4W Rg38 RD14GY2E330J RS14GB3A121J Rg76 RD14GY2E391J RD14GY2E391J Flame-proof RD 30Ω ±5% 1/4W RS									
Rg38			RESISTOR	ļ					
Rg38	Ba0 10 24	BD14GV2E1011	Flame-proof BD 1000 ±5% 1/4W						
Rg55	I .								
Rg76	_	Į.	1						
Rg77 RD14GY2E391J Flame-proof RD 390Ω±5% 1/4W (X05-1540-10, -61, -81)	_		1						
SEMICONDUCTOR SEMICONDUCTOR	_	I.							
SEMICONDUCTOR Qg1	Rg77	RD14GY2E391J							
Qg1 V09-0124-10 FET 2SK61 (Y), (GR) Qg2 V03-0098-05 Transistor 2SC535(B) Qg3 V03-0357-05 Transistor 2SC1342(A), (B) Qg4, 5 V01-0146-05 Transistor 2SA640(E) V01-0190-05 or 2SA841(BL) ICg1 V30-0133-05 IC HA1137W ICg2 V30-0160-05 IC HA1156W (B) ICg3 V30-0134-05 IC HA1151 ICg4, 5 V30-0264-10 IC HA1457 Dg1~5 V11-0271-05 Diode 1S2076 V11-0076-05 or 1S1555 (X05-1540-10, -61, -81) Diode 1S2076 V11-0076-05 Diode 1S2076 V11-0076-05 V11-0076-05 Or 1S1555 (X05-1540-11, -62, -82) Diode 1N60 VC/TRIMMER/POTENTIOMETER - C01-0185-05 Variable capacitor TCg1 C05-0055-05 Ceramic trimmer (6 P, Red) VRg1 R12-201	<u> </u>		(X05-1540-10, -61, -61)	L					
Qg2 V03-0098-05 Transistor 2SC535(B) Qg3 V03-0357-05 Transistor 2SC1342(A), (B) Qg4, 5 V01-0146-05 Transistor 2SA640(E) V01-0190-05 or 2SA841(BL) ICg1 V30-0133-05 IC HA1137W ICg2 V30-0160-05 IC HA1156W (B) ICg3 V30-0134-05 IC HA1151 ICg4, 5 V30-0264-10 IC HA1457 Dg1~5 V11-0271-05 Diode 1S2076 V11-0076-05 or 1S1555 (X05-1540-10, -61, -81) Diode 1S2076 Or 1S1555 (X05-1540-11, -62, -82) Dg6, 7 V11-0051-05 Diode 1N60 VC/TRIMMER/POTENTIOMETER - C01-0185-05 Variable capacitor TCg1 C05-0055-05 Ceramic trimmer (6 P, Red) VRg1 R12-2016-05 Trimming potentiometer 5kΩ(B) COIL/INDUCTOR/IFT/FILTER Lg1 L31-0412-05 FM ANT coil<	1	SE	MICONDUCTOR						
Qg2 V03-0098-05 Transistor 2SC535(B) Qg3 V03-0357-05 Transistor 2SC1342(A), (B) Qg4, 5 V01-0146-05 Transistor 2SA640(E) V01-0190-05 or 2SA841(BL) ICg1 V30-0133-05 IC HA1137W ICg2 V30-0160-05 IC HA1156W (B) ICg3 V30-0134-05 IC HA1151 ICg4, 5 V30-0264-10 IC HA1457 Dg1~5 V11-0271-05 Diode 1S2076 V11-0076-05 or 1S1555 (X05-1540-10, -61, -81) Diode 1S2076 V11-0076-05 or 1S1555 (X05-1540-11, -62, -82) Diode 1N60 VC/TRIMMER/POTENTIOMETER - C01-0185-05 Variable capacitor TCg1 C05-0055-05 Ceramic trimmer (6 P, Red) VRg1 R12-2016-05 Trimming potentiometer 5kΩ(B) COIL/INDUCTOR/IFT/FILTER Lg1 L31-0412-05 FM ANT coil A	Qq1	V09-0124-10	FET 2SK61 (Y), (GR)						
Qg3		V03-0098-05	Transistor 2SC535(B)						
Qg4, 5	I -			1 1					
V01-0190-05 Or 2SA841(BL) ICg1	1 -	1	1						
ICg1	C294, 5								
ICg2	1	VU1-0190-05	20/104/102/						
ICg2	10.4	V20 0122 05	IC 4 A 1137W						
ICg3		!							
ICg4, 5									
Dg1~5 V11-0271-05 V11-0276-05 or 1S1555 (X05-1540-10, -61, -81) Dg1,2,4,5 V11-0271-05 Diode 1S2076 or 1S1555 (X05-1540-11, -62, -82) Dg6, 7 V11-0051-05 Diode 1N60 VC/TRIMMER/POTENTIOMETER - C01-0185-05 Variable capacitor TCg1 C05-0055-05 Ceramic trimmer (6 P, Red) VRg1 R12-2016-05 Trimming potentiometer 5kΩ(B) COIL/INDUCTOR/IFT/FILTER Lg1 L31-0412-05 FM ANT coil FM RF coil	1 -		1 -						
V11-0076-05	ICg4, 5	√30-0264-10	IC HA145/						
V11-0076-05									
Dg1,2,4,5	Dg1~5		1						
Dg1,2,4,5	ļ	V11-0076-05							
V11-0076-05 Or 1S1555 (X05-1540-11, -62, -82) Diode 1N60			(X05-1540-10, -61, -81)						
V11-0076-05	Dg1,2.4.5	V11-0271-05	Diode 1S2076						
(X05-1540-11, -62, -82) Diode 1N60	1	l .	or 1S1555						
Dg6, 7	1		1 .						
VC/TRIMMER/POTENTIOMETER	Da6 7	V11-0051-05							
C01-0185-05 Variable capacitor TCg1 C05-0055-05 Ceramic trimmer (6 P, Red) VRg1 R12-2016-05 Trimming potentiometer 5kΩ(B) COIL/INDUCTOR/IFT/FILTER Lg1 L31-0412-05 FM ANT coil Lg2 L31-0410-05 FM RF coil									
TCg1 C05-0055-05 Ceramic trimmer (6 P, Red) VRg1 R12-2016-05 Trimming potentiometer 5kΩ(B) COIL/INDUCTOR/IFT/FILTER Lg1 L31-0412-05 FM ANT coil Lg2 L31-0410-05 FM RF coil	L	VC/TRIM	IVICE/PUTENTIUNETEK						
VRg1 R12-2016-05 Trimming potentiometer 5kΩ(B) COIL/INDUCTOR/IFT/FILTER Lg1 L31-0412-05 FM ANT coil Lg2 L31-0410-05 FM RF coil	_	C01-0185-05	Variable capacitor						
VRg1 R12-2016-05 Trimming potentiometer 5kΩ(B) COIL/INDUCTOR/IFT/FILTER Lg1 L31-0412-05 FM ANT coil Lg2 L31-0410-05 FM RF coil	TC-1	COE 0055 05	Coromia trimmer (6 B. Red)						
COIL/INDUCTOR/IFT/FILTER Lg1	'Cg	200-0000-00	Colaine Ginnie (Gr, Med)						
Lg1 L31-0412-05 FM ANT coil Lg2 L31-0410-05 FM RF coil	VRg1 R12-2016-05 Trimming potentiometer $5k\Omega(B)$								
Lg2 L31-0410-05 FM RF coil	[COIL/II	NDUCTOR/IFT/FILTER						
Lg2 L31-0410-05 FM RF coil	La1	1-31-0412-05	FM ANT coil	☆					
	1	1							
Lg3 L40-1091-41 Inductor 1µH		1	•						
		1							

D.f.N	B N.	Davis	Re-						
Ref. No.	Parts No.	Description	marks						
Lg4	L32-0187-05	FM OSC coil							
	(Cg6:CC45PG1H2								
		or							
1	(Cg6:CC45RG1H	. –							
Lg5	L30-0282-05	FM IFT							
Lg6	L40-2205-25	Inductor 22µH							
Lg7	L30-0305-05	FM IFT	☆						
Lg8	L30-0306-05	FM IFT	☆						
Lg9	L40-2292-44	Inductor 2.2µH							
Lg10	L40-1092-44	Inductor 1µH							
	L40-1092-03	or 1µH							
Lg11	L32-0205-15	AM OSC coil							
Lg12	L30-0307-05	AM IFT	☆						
Lg13	L30-0300-05	AM IFT							
Lg14	L40-1021-45	Inductor 1mH							
İ	L40-1021-03	or 1mH							
CFg1, 2	L72-0052-05	FM ceramic filter	İ						
		(X05-1540-10, -11, -81, 82)							
CFg1, 2	L72-0058-05	FM ceramic filter							
		(X05-1540-61, 62)							
CFg3	L72-0054-05	AM ceramic filter	☆						
		SWITCH							
Sg1	S29-1110-05	Slide rotary switch SELECTOR	☆						
_		(X05-1540-10, -61, -81)							
Sg1	S29-1109-05	Slide rotary switch SELECTOR	☆						
1		(X05-1540-11, -62, -82)							
Sg2	S40-2088-05	Push switch TAPE	☆						
	MISCELLANEOUS								
	E29-0088-05	Terminal board							
			<u> </u>						

KR-2090 AUDIO (X09-1280, -1281-)

Ref. No.	Parts No.	0	escription		Re- marks		
	C	APACITOR					
Cm1, 2	CQ93M1H183K	Mylar	0.018µF	± 10%			
Cm3, 4	CE04AW1H010M	Electrolytic	1μF	50WV			
Cm5, 6	CC45SL1H221K	Ceramic	220pF	±10%			
Cm7~10	CE04W1E100	Electrolytic	10μF	25WV			
Cm11, 12	CC45SL1H470K	Ceramic	47pF	± 10%			
Cm13, 14	CC45SL1H101K	Ceramic	100pF				
Cm15, 16	CC45SL1H100D	Ceramic	10pF	±0.5pF			
Cm17, 18	CC45SL1H220K	Ceramic	22pF				
Cm19, 20	CE04W1E330	Electrolytic	33µF	25WV			
Cm21, 22	CE04W1A470	Electrolytic	47µF	10WV			
Cm23, 24	CE04BW1C100M						
Cm25, 26	CQ93M1H153K	Mylar	0.015μF	± 10%			
Cm27, 28	CQ93M1H683K	Mylar	0.068µF	± 10%			
Cm29, 30	CQ93M1H472K	Mylar	4700pF	± 10%			
Cm31, 32	CQ93M1H223K	Mylar	0.022μF	± 10%			
Cm33, 34	CQ93M1H224M	Mylar	0.22µF	± 20%			
Cm35	CE04W1C100	Electrolytic	10μF	16W∨			
Cm36	CE04W1V221	Electrolytic	220µF	35WV			
Cm37	CE04W1V101	Electrolytic	100µF	35 W ∨			
Cm38	CE04W1C221	Electrolytic	220µF	16WV			
Cm39	CE04W1C470	Electrolytic	47µF	16WV			
Cm40, 41	C90-0368-05	Electrolytic	4700µF	35WV			
Cm42, 43	CK45E2H103P	Ceramic	0.01μF	+100%,-0%			
Cm44	C90-0145-05	Film capacit	or 0.01µF	125WV			
	C91-0001-05	or Ceramic	0.01µF	125WV			
l		(X09-1280-1	0)				
Cm44	C91-0025-05	Ceramic	$0.01 \mu F$	125WV			
l		(X09-1281-0	1)				
Cm44	C91-0023-05	Ceramic	$0.01 \mu F$	250W∨			
		(X09-1280-8	1)		-		
Cm44	CK45E3D103PM	J Ceramic	0.01µF	2KWV			
(X09-1280-61, -1281-71)							
		!					

2090,3090

PARTS LIST

Ref. No.	Parts No.	Description	Re- marks					
		RESISTOR						
5 47 40	DD440V05004 I	Flame-proof RD 2200 ±5% 1/4W						
	RD14GY2E221J	•						
- 1	RD14GY2E101J	Flame-proof RD 100 Ω ±5% 1/4W						
	RD14GY2E331J	Flame-proof RD 330Ω ±5% 1/4W						
	R92-0110-05	Cement 0.47Ω 1W						
Rm57, 58	RS14GB3A3R3J	Flame-proof RS 3.3 Ω ±5% 1W						
Rm59, 60	RC05GF2H271K	RC $270\Omega \pm 10\% 1/2W$						
Rm61	RD14GY2E560J	Flame-proof RD 56 Ω ±5% 1/4W						
Rm62	RD14GY2E391J	Flame-proof RD 390Ω ±5% 1/4W						
Rm64	RD14GY2E821J	Flame-proof RD 820Ω ±5% 1/4W						
Rm65	RS14GB3A220J	RS 22 Ω ±5% 1W						
ŧ								
Rm66	RS14GB3A331J							
Rm67	RC05GF2H225M							
		(X09-1280-10, -1281-01)						
	SE	MICONDUCTOR	1					
Qm1~4	V01-0146-05	Transistor 2SA640(E), (F)						
	V01-0190-05	or 2SA841(GR), (BL)						
Qm5~8	V03-1890-20	Transistor 2SC1890(E), (F)						
	V03-0424-05	or 2SC1400(U)						
Qm9, 10	V03-1890-20	Transistor 2SC1890(F)						
		Transistor 2SC2274K(E), (F)						
Qm11, 12								
	V03-0215-05	or 2SC1213A(C), (D)						
Qm13, 14	V01-0984-30	Transistor 2SA984K(E), (F)						
	V01-0073-05	or 2SA673A(C), (D)						
Qm15, 16	V02-0690-10	Transistor 2SB690(B), (C)	☆					
	V02-0507-10	or 2SB507V(D), (E)	☆					
Qm17, 18	V04-0726-10	Transistor 2SD726(B), (C)	☆					
,	V04-0313-20	or 2SD313V(D), (E)	☆					
Qm19	V03-0270-05	Transistor 2SC945(Q), (R)	"					
Qm20	∨04-0330-20	Transistor 2SD330(E)						
Dm1	V11-1300-60	Diode S2VC10	☆					
	V11-1300-70	or S2VC20	☆					
Dm2	V11-1300-80	Diode S2VC10R	₩					
	V11-1300-90	or S2VC20R	- 2					
Dm3	V11-0076-05	Diode 1S1555	۳ ا					
Dillo								
D-4 E	V11-0271-05							
Dm4, 5	V11-0254-05	Zener diode YZ-140	1					
		POTENTIOMETER						
VRm1	R06-5026-05	Potentiometer 100k Ω (B) VOLUME						
VRm2	R01-5019-05	Potentiometer 200kΩ(M) BALANCE						
VRm3, 4	R06-5033-05	Potentiometer 100kΩ(C) TONE						
,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		SWITCH						
	C40 2007 05	LOUDNESS	1					
Sm1	S40-2087-05	POWER/SPEAKERS						
Sm2	S02-1011-05		1					
	!	(X09-1280-10, -1281-01)						
Sm2	S02-1012-05	Rotary switch POWER/SPEAKERS (X09-1280-81)						
		,						
Sm2	S02-1013-05	Rotary switch POWER/SPEAKERS (X09-1280-61, -1281-71)						
		FUSE						
Fm1	F05-1021-05	Fuse 1A, 250V (X09-1280-10, -1280-01)						
E-1 2	505 1000 05	Fuse 1A, 250V						
Fm1, 3	F05-1023-05							
		(X09-1280-81)						
Fm1, 3	F06-1021-05	Fuse 1A, 250V						
		(X09-1280-61, -1281-71)	ı					
Fm2	F05-2021-05	Fuse 2A, 250V	J					
	1	(X09-1280-10, -1281-01)						
Fm2	F05-2023-05	Fuse 2A, 250V						
	-	(X09-1280-81)						
Fm2	F05-2029-05	Fuse 2A, 250V						
(X09-1280-61)								
	MI	SCELLANÉOUS						
Lm1	L40-1021-03	Ferri-inductor	- 1					
	E11-0060-15	Phone jack						
L	E 11-0000-10	. Hollo juck						

Ref. No.	Parts No.	Description	Re- marks
_	E20-0811-05	Speaker terminal board	
_	F29-0014-05	Insulating bushing X 4	
-	J13-0041-05	Fuse clip X 4 (X09-1280-10, -1281-01)	
_	J13-0041-05	Fuse clip X 6 (X09-1280-81)	
_	J13-0054-05	Fuse clip X 6 (X09-1280-61)	
_	J13-0054-05	Fuse clip X 4 (X09-1281-71)	

KR-3090 AUDIO (X09-1290, -1291-)

Ref. No.	Parts No.	D	escription		Re- marks
	-	CAPACITOR			
Cm1, 2	CQ93M1H183K	Mylar	0.018μF	± 10%	
Cm3, 4	CS15E1VR68M	Tantalum	0.68µF	35WV	
Cm5, 6	CC45SL1H221K	Ceramic	220pF	±10%	
Cm7, 8	CE04W1C220	Electrolytic	22µF	16WV	
Cm9, 10	CE04W1E100	Electrolytic	,	25WV	
Cm11, 12	CC45SL1H470K	Ceramic	47pF	±10%	
Cm13, 14	CC45SL1H100D	Ceramic	10pF	±0.5pF	
Cm15, 16	CC45SL1H150K	Ceramic	15pF	±10%	
Cm17, 18	CE04W1A470	Electrolytic	47µF	10W∨	
Cm19, 20	CE04W1E330	Electrolytic	•	25WV	
Cm21, 22	CE04W1A470		•		
Cm23, 24	CE04BW1C100M	Electrolytic	•	10WV	
–	CQ93M1H153K		•	16WV	
Cm25, 26 Cm27, 28	CQ93M1H153K	Mylar	0.015μF		
Cm29, 30	CQ93M1H472K	Mylar Mylar	0.068μF 4700pF	±10% ±10%	
Cm31, 32	CQ93M1H223K	Mylar			
Cm33, 34	CQ93M1H104M		0.022μF		
Cm50	CE04W1V101	Mylar	0.1μF	±20%	
Cm51		Electrolytic		35WV	
i	CE04W1V221	Electrolytic	•	35WV	
Cm52	CE04W1E100	Electrolytic	•	25WV	
Cm53	CE04W1C101	Electrolytic		16WV	
Cm54	CE04W1C470	Electrolytic	•	16WV	
Cm55, 56	C90-0369-05	Electrolytic		44WV	☆
Cm57, 58	CK45E2H103P	Ceramic	0.01μF	+100%,-0%	
Cm59	C90-0145-05	Film	0.1μF	AC 125V	
	C91-0001-05	or Ceramic (X09-1290-1		AC 125V	
Cm59	C91-0025-05	Film (X09-1291-0	0.1μF (1)	AC 125V	
Cm59	C91-0023-05	Ceramic (X09-1290-8	0.1μF 1)	AC 125V	
Cm59	CK45E3D103PMU	J Ceramic	0.01µF	DC 2kV	
		(X09-1290-6	1, -1291-7	1)	
	F	RESISTOR			
Rm15, 16	RD14GY2E221J	Flame-proof	RD 220Ω	±5% 1/4W	l
Rm17, 18	RD14GY2E101J	Flame-proof			
Rm33, 34	RD14GY2E161J	Flame-proof			
	RD14GY2E331J	Flame-proof			1
Rm39~42	R92-0110-05	Cement	0.475		
	RS14GB3A4R7J	RS	4.7Ω		
1	RC05GF2H271K	RC		±10% 1/2W	ŀ
Rm81	RD14GY2E560J	Flame-proof			
Rm82	RD14GY2E681J	Flame-proof			
Rm83	RS14GB3D680J	Flame-proof			
Rm84	RS14GB3D6803	Flame-proof			1
Rm85	RC05GF2H225M	RC		±5% 1VV ±20% 1/2W	
1111100	1100001 211225101	(X09-1290-1			
	SEI	MICONDUCT			
Qm1~4	V01-0146-05	Transistor 2			
	V01-0190-05	or 2	SA841(G	R), (BL)	

PARTS LIST

Ref. No.	Parts No.	Description	Re- marks
Qm5~8	V03-1890-20	Transistor 2SC1890(E), (F)	
	V03-0424-05	or 2SC1400(U)	
Qm9, 10	V03-0270-05	Transistor 2SC945(R), (Q)	
	V01-0084-05	Transistor 2SA733(R), (Q)	
Qm13, 14	V03-0452-05 V03-0494-05	Transistor 2SC1735(D), (E) or 2SC1509(R), (Q)	1
	V03-0494-05	(X09-1290-10, -61, -81, -1291-71)	
Om13 14	V03-0494-05	Transistor 2SC1509(R), (Q)	
		(X09-1291-01)	
Qm15, 16	∨01-0173-05	Transistor 2SA850(D), (E)	
ļ	V01-0208-05	or 2SA777(R), (Q)	
		(X09-1290-10, -61, -81, -1291-71)	
Qm15, 16	V01-0208-05	Transistor 2SA777(R), (Q)	
	VO 4 0070 05	(X09-1291-01)	
Qm17, 18	V04-0078-05 V02-0059-05	Transistor 2SD525 Transistor 2SB595	
Qm19, 20 Qm21	V03-0270-05	Transistor 25C945(R), (Q)	
Qm22	V04-0330-20	Transistor 2SD330	
422	100000000000000000000000000000000000000		
Dm1, 2	V11-5100-10	Varistor STV-4H(W)	
Dm3~5	V11-0076-05	Diode 1S1555	
1	V11-0271-05	or 1S2076	
Dm6	V11-4100-30	Zener diode WZ-197	
Dm7	V11-0254-05	Zener diode YZ-140	
Dm8~11	V11-2100-50	Diode U08C	L
	PO	TENTIOMETER	
VRm1	R06-5026-05	Potentiometer 100kΩ(B) VOLUME	
VRm2	R01-5019-05	Potentiometer 200k $\Omega(M)$ BALANCE	
VRm5, 6	R06-5033-05	Potentiometer 100kΩ(C) TONE	☆
		SWITCH	
S-1	S40-2087-05	Push switch LOUDNESS	th th
Sm1 Sm2	S02-1011-05	Rotary switch POWER/SPEAKERS	12
011,2	002 / 0 / 0	(X09-1290-10, -1291-01)	
Sm2	S02-1012-05	Rotary switch POWER/SPEAKERS	ជា
		(X09-1290-81)	
Sm2	S02-1013-05	Rotary switch POWER/SPEAKERS	☆
	<u> </u>	(X09-1290-61, -1291-71)	J
		FUSE	
Fm1	F05-1021-05	Fuse 1A, 250V	
	505 4000 05	(X09-1290-10, -1291-01) Fuse 1A, 250V	
Fm1	F05-1023-05	(X09-1290-81)	
Fm1	F06-1021-05	Fuse 1A, 250V	
1 ' ''''	1 00-1021 03	(X09-1290-61, -1291-71)	
Fm2	F05-3021-05	Fuse 3A, 250V	
		(X09-1290-10, -1291-01)	
Fm2	F05-3022-05	Fuse 3A, 250V	
		(X09-1290-81)	
Fm2	F05-3122-05	Fuse 3.15A, 250V	
E2	E05 1521 05	(X09-1290-61) Fuse 1.5A, 250V	
Fm3	F05-1521-05	(X09-1290-81)	
Fm3	F05-1622-05	Fuse 1.6A, 250V	
5		(X09-1290-61, -1291-71)	
	N	IISCELLANEOUS	
Lm1	L40-1021-03	Ferri-inductor	1
	L40-1021-00		
_	E11-0060-15	Phone jack	
_	E20-0811-05	Speaker terminal board	
-	F29-0014-05	Insulating bushing X 4	
	112 0041 05	Fuse clip X 4	
_	J13-0041-05	(X09-1290-10, -1291-01)	
_	J13-0041-05	Fuse clip X 6	
	15,5053.00	(X09-1290-81)	
_	J13-0054-05	Fuse clip X 6	
		(X09-1290-61)	
_	J13-0054-05	Fuse clip X 4	
1		(X09-1291-71)	1

Note:

Resistors except the special type (example: cement, metal film, etc.) are not detailed in PARTS LIST. With regard to the value, refer to the schematic diagram or the PC board illustration.

Resistors not detailed are carbon type (1/4W or 1/8W).

You should give an order for the carbon resistors according to the ways described as follows:

A carbon resistor's part number is example RD-14BY 2E 222J.

1. Kinds of the carbon resistor

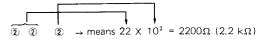




2. Wattage

1/4W 2E 1/8W 2B

3. Resistance value



Significant figure Multiplier

4. Tolerance

 $J = \pm 5\%$ (Gold color) $K = \pm 10\%$ (Silver color)

KR3@90



ADJUSTMENT

INSTRUMENTS USED

Oscilloscope SCOPE AM signal generator AM-SG FM signal generator FM-SG Audio generator AG Solid state voltmeter SSVM FM multiplex generator FM-MPX Frequency counter

NOTES FOR ADJUSTMENTS

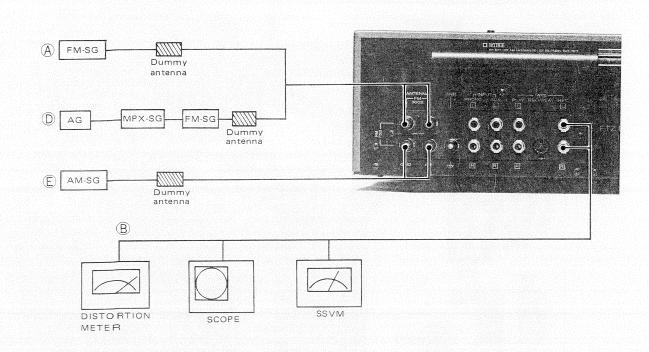
- * Use moderate instrument outputs at all times.
- * Repeat tracking adjustments 2 or 3 times and finally confirm the result using respective local stations.
- * The output level of RF-SG is made a loss by the dummy antenna.
- * $0 dB = 1 \mu V$

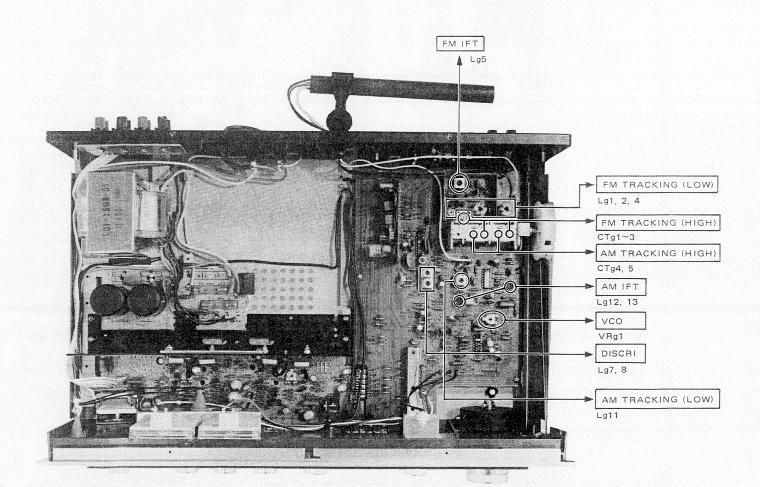
OR-		INSTRUMENT		RECEIVER		ADJUSTMENT	ADJUSTMENT
DER	ITEM	CONNECTION	SETTING	SETTING	SETTING OUTPUT POINTS METHOD		
FΝ	SECTION						L
1	IFT	(A)	95 MHz 1 kHz (Mod) 75 kHz (Dev)	FM 95 MHz	B	Lg5	Maximum optimum waveform, minimum distortion.
2		_	_	FM Noise (between local stations)	T meter	Lg7	Meter indication in the center.
3	DISCRI	A	95 MHz 60 dB 1 kHz (Mod) 75 kHz (Dev)	FM 95 MHz	B	Lg8	Maximum optimum waveform, minimum distortion.
4	TRACK-		90 MHz 1 kHz (Mod) 75 kHz (Dev)	FM 90 MHz FM MUTING OFF	(B)	Lg1, 2, 4	Maximum optimum
5	ING	A	106 MHz (Dev) 1 kHz (Mod) 75 kHz (Dev)	FM 106 MHz FM MUTING OFF	•	CTg1~3	waveform.
6	vco	(A)	95 MHz 60 dB 0 (Dev)	FM 95 MHz	Frequency counter to TP. (See	VRg1 schematic diagra	Adjusted to 19 kHz.
7	IFT	©	FM-MPX: SELECTOR L + R 1 kHz (Mod) FM-SG: 95 MHz 60 dB 68.25 kHz (Dev)	FM 95 MHz	®	Lg5	Maximum optimum waveform. Minimum distortion.
AM	SECTION					,	
1	IFT	E	1000 kHz 400 Hz 30% (Mod) 100 dB	AM 1000 kHz	B	Lg12, 13	Maximum optimum waveform.
2	TRACK-	(E)	600 kHz 400 Hz 30% (Mod) 100 dB	AM 600 kHz	®	Lg11 Bar antenna	Maximum optimum
3	ING		1400 kHz 400 Hz 30% (Mod) 100 dB	AM 1400 kHz	. (2)	CTg4, 5	waveform.



(Before checking, turn VOLUME fully counterclockwise.)

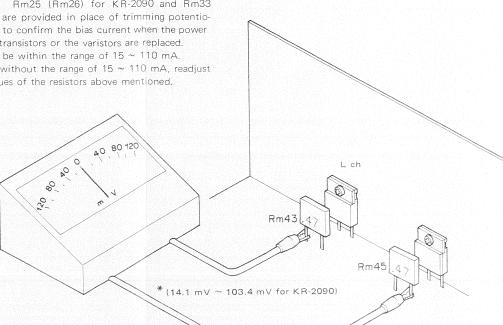
ADJUSTMENT / ABSOLUTE MAX. RATINGS





BIAS CURRENT

There is no adjustment to be made by trimming potentiometer in a conventional manner. Rm25 (Rm26) for KR-2090 and Rm33 (Rm34) for KR-3090 are provided in place of trimming potentiometers. It is necessary to confirm the bias current when the power transistors, the driver transistors or the varistors are replaced. The bias current must be within the range of 15 \sim 110 mA. If the bias current is without the range of 15 \sim 110 mA, readjust it by changing the values of the resistors above mentioned.



BIAS CURRENT CHECK

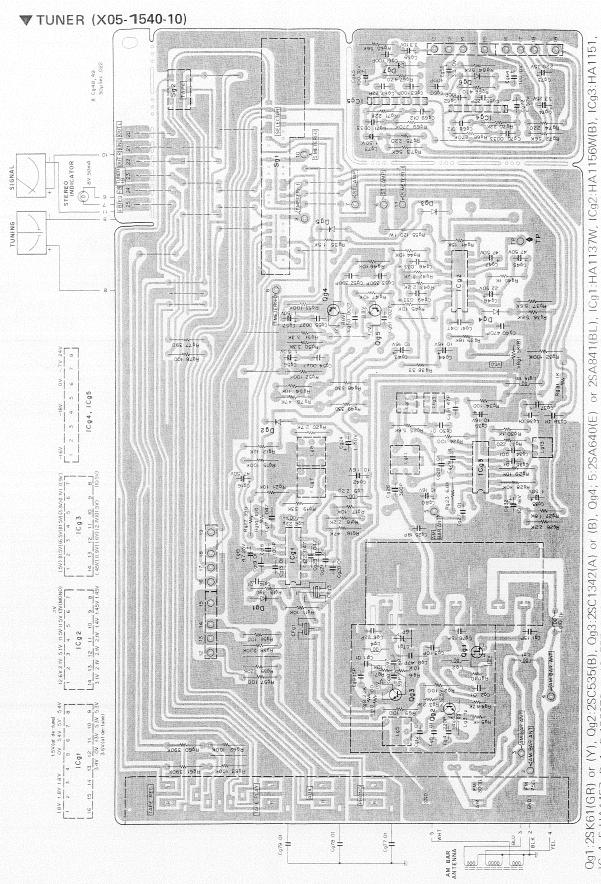
* (Rm43 + Rm45) \times 15 mA \sim (Rm43 + Rm45) \times 110 mA.

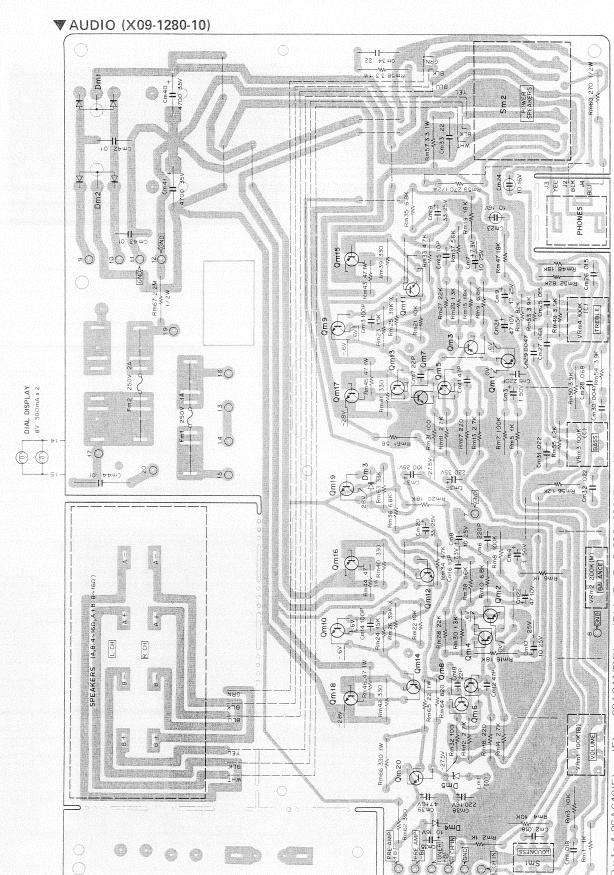
ABSOLUTE MAX. RATINGS

TRANSISTOR	Vсво	VEBO	VCEO	Ic	PC	Tj	Tstg	fT
2SB507	-75V	-5V	-75V	-3A	30W (Tc = 25°C)	150°C	-40 ~ +150°C	8 MHz
2SB690	-100V	-5V	-80V	-4A	40W (Tc = 25°C)	150°C	-45 ~ +150°C	-
2SD313V	75V	5V	75V	3A	30W (Tc = 25°C)	150°C	-40 ~ +150°C	8 MHz
2SD726	100∨	5V	80V	4A	40W (Tc = 25°C)	150°C	-45 ~ +150°C	-
DIODE	VRM	VF	IR	lo	Vi	Р	Tj	Tstg
S2VC10	100V	1.05∨	10 μΑ	2A	35V	and the second s	150°C	−30 ~ +150°C
S2VC10R	100∨	1.05∨	10 μΑ	2A	35V	SATURAL CONTRACTOR OF THE PARTY	150°C	-30 ∼ +150°C
S2VC20	200V	1.05∨	10 μΑ	2A	70V	-	150°C	-30 ∼ +150°C
S2VC20R	200V	1.05V	10 μΑ	2A	70V		150°C	_30 ~ +150°C

KR-2090.3090 | KR-2090.3090

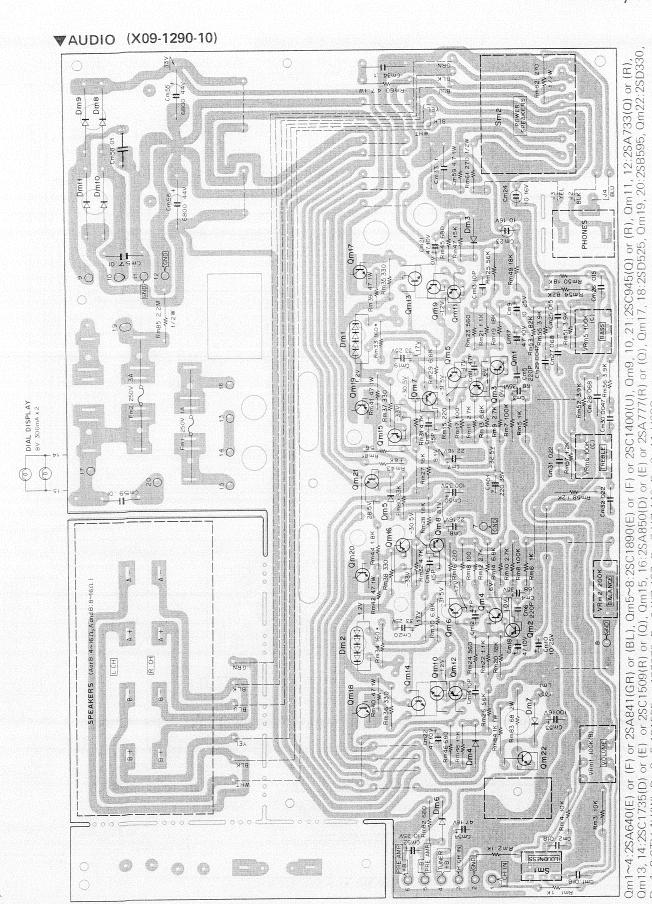
PC BOARD

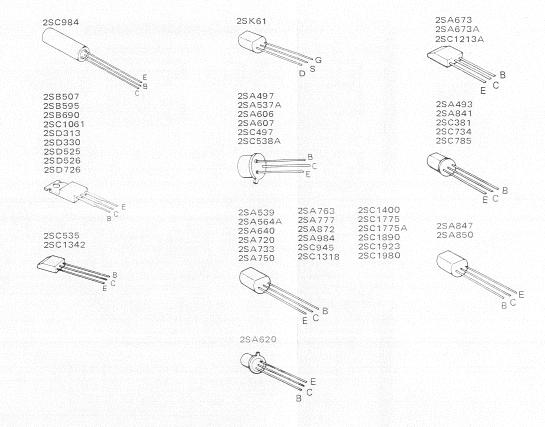






PC BOARD / SEMICONDUCTOR SUBSTITUTIONS

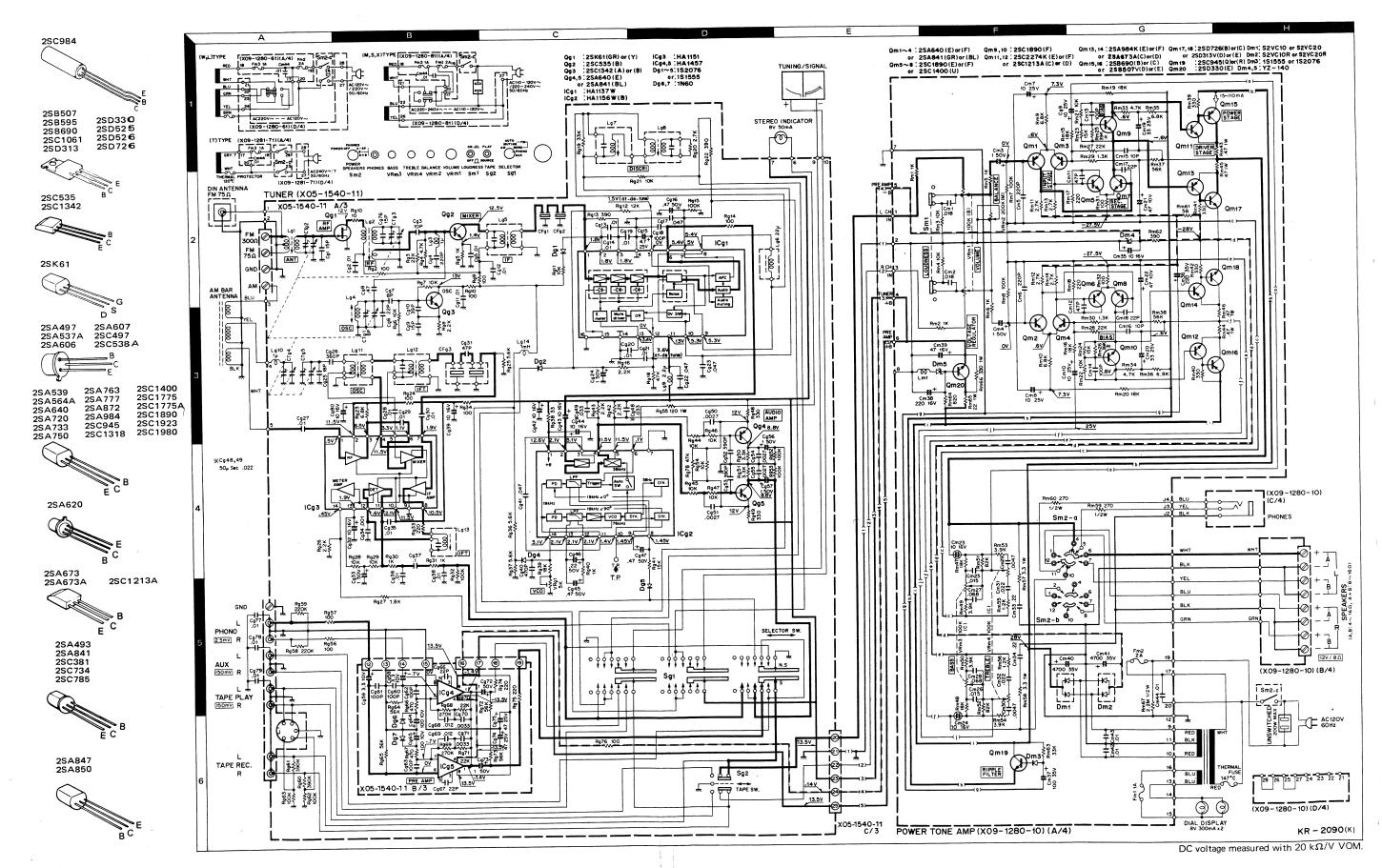




PC board ass'y	Ref. No.	Semiconductor name	Substitutions
X05-1540-10	Qg1 Qg2 Qg3 Qg4, 5	2SK61(GR, Y) 2SC535(B) 2SC1342(A, B) 2SA640(E), 2SA841(B, L)	
X09-1280-10	Qm1~4 Qm5~8 Qm9, 10 Qm11, 12 Qm13, 14 Qm15, 16 Qm17, 18 Qm19 Qm20	2SA640A(E, F), 2SA841(GR,BL) 2SC1890(E, F), 2SC1400(U) 2SC1890(F) 2SC2274K(E, F), 2SC1213A(C, D) 2SA984K(E, F), 2SA673A(C, D) 2SB690(B, C), 2SB507(D, E) 2SD726(B, C), 2SD313V(D, E) 2SC945(D, R) 2SD330(E)	2SA750(E, F), 2SA872(D,E,F), 2SA620WLH(5), 2SA493(GR), 2SA847(G, H), 2SA620WL(5, 6), 2SA620WN(5), 2SA763WL 2SC1775(E, F), 2SC1775A(E, F), 2SC1980(S, T) 2SC1775(E, F), 2SC1775A(E, F), 2SC1980(S, T) 2SC1318(Q, R), 2SC497(R) 2SA497(Y) - 2SC734(Y), 2SC538A, 2SC984(C), 2SC1213A(C), 2SC1318(Q,R) 2SC1061, 2SD525, 2SD526
X09-1290-10	Qm1~4 Qm5~8 Qm9, 10 Qm11, 12 Qm13, 14 Qm15, 16 Qm17, 18 Qm19, 20 Qm21 Qm21	2SA640(E,F), 2SA841(GR, BL) 2SC1890(E,F), 2SC1400(U) 2SC945(Q, R) 2SA733(Q, R) 2SC1735(D, E), 2SC1509(R, B) 2SA850(D, E), 2SA777(R, Q) 2SD525 2SB595 2SC945(Q, R) 2SD330	2SA750(E, F), 2SA872(D, E, F), 2SA620WLH(5), 2SA493(GR), 2SA620WLIG, 6), 2SA620WNIG), 2SA763WLIG, 6) 2SA847 (G, H) 2SC1775(E, F), 2SC1775A(E, F), 2SC1980(S, T) 2SC734(Y), 2SC538(A), 2SC984(C), 2SC1213A(C), 2SC1318(Q, R) 2SA561, 2SA564A, 2SA639, 2SA720(Q, R), 2SA673A, 2SA673 — 2SA537A(C), 2SA607(L, K), 2SA606(L) — 2SC734(Y), 2SC538A, 2SC984(C), 2SC1213A(C), 2SC1318(Q, R) 2SC1061, 2SD525, 2SD526

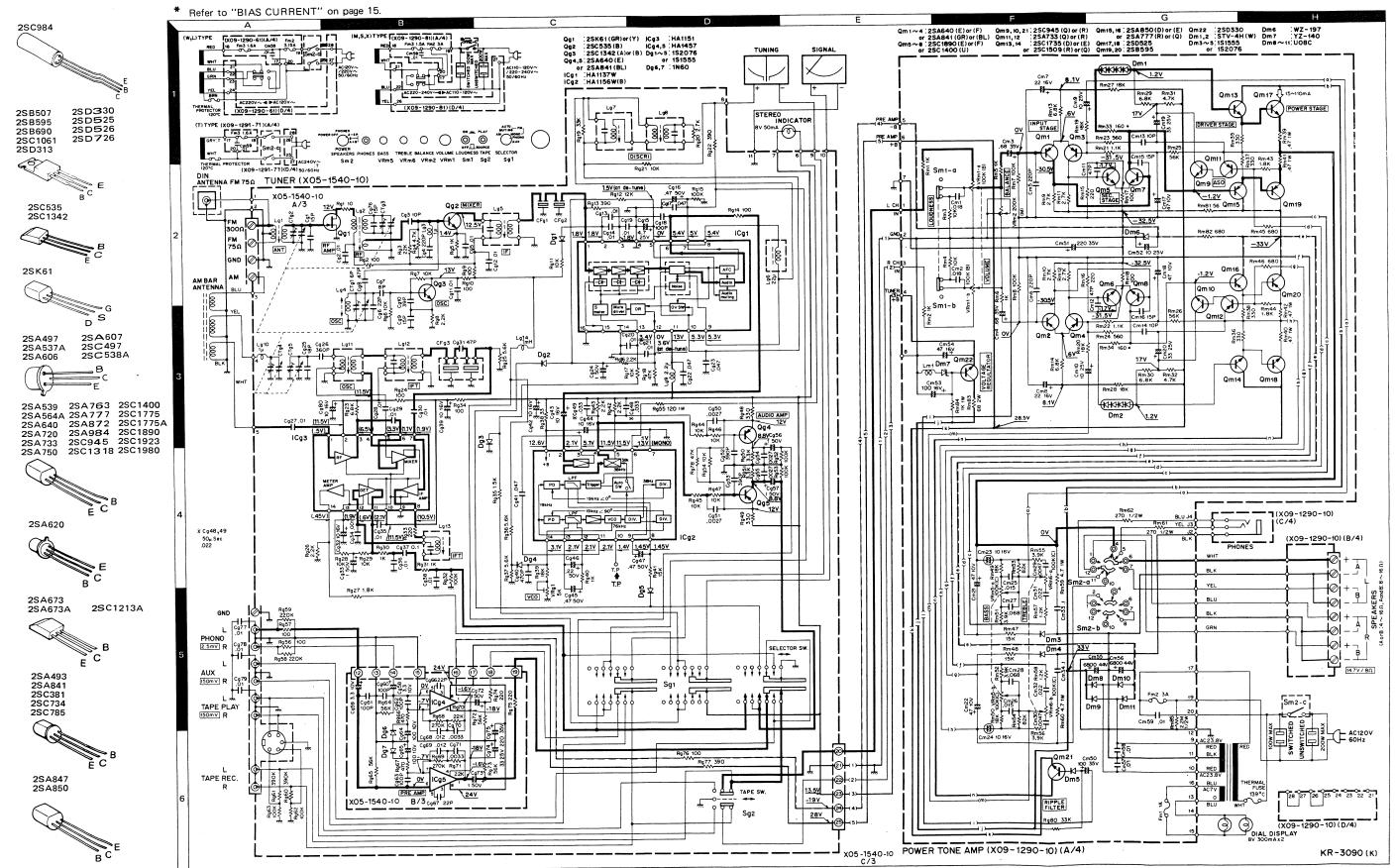
KR-2090,3090 KR-2090,3090

SCHEMATIC DIAGRAM(KR-2090)





SCHEMATIC DIAGRAM(KR-3090)



KR-2090,3090



SPECIFICATIONS

KR-2090

AMPLIFIER SECTION	FM TUNER SECTION (IHF)
Power Output	Usable Sensitivity 11.2 dBf (2.0 μ V)
16 watts* per channel, minimum RMS both channels	50 dB Quieting Sensitivity
driven, at 8 ohms from 20 to 20,000 Hz with no	Mono 15.6 dBf (3.3 μ V)
more than 0. 1% total harmonic distortion.	Stereo
	Signal to Noise Ratio at 65 dBf
Both Channel □riven 18 + 18 watts 8 ohms at 1.000 Hz	Mono
22 + 22 watts 4 ohms	Stereo
at 1.000 Hz	Total Harmonic Distortion
Dynamic Power Output 90 watts 4 ohms	Mono 0.2%
Total Harmonic Distortion 0.1% at rated power into	Stereo 0.3%
8 ohms	Frequency Response 20 Hz to 15,000 Hz +1.0 dB -2.0 dB
0.05% at 1 watt into 8	Capture Ratio 1.5 dB
ohms	Image Response Ratio 60 dB
Intermodulation Distortion 0.1% at rated power into	Spurious Response Ratio 75 dB
(60 Hz : 7 k Hz 4 : 1) 8 ohms	IF Response Ratio 90 dB
0.05% at 1 watt into 8	Alternate Channel Selectivity 54 dB
ohms	AM Suppression Ratio 55 dB
Power Bandwidth 10 Hz to 60,000 Hz	Stereo Separation Ratio 43 dB at 1.000 Hz
Damping Factor	35 dB at 50 Hz to 10,000 Hz
Speaker Impedance Accept 4 ohms to 16 ohms	Sub Carrier Product Ratio 40 dB
Input Sensitivity/Impedance/Signal to Noise Ratio	Antenna Impedance 300 ohms balanced &
(IHF A Curve)	75 ohms unbalanced
Phono 2.5 mV/50 k ohms/ 76 dB	FM Frequency Range 88 MHz to 108 MHz
AUX	
Tape	AM SECTION
Maximum Input Level for Phono 120 mV (RMS),	Usable Sensitivity 20 µV
T.H.D. 0.1% at 1,000 Hz	Signal to Noise Ratio 50 dB
Output Level/Impedance Tape REC (Pin) 150 mV / 100 ohms	Image Rejection 50 dB
(DIN) 30 mV / 80 k ohms	Selectivity 35 dB
Frequency Response	
Phono RIAA standard curve ±0.5 dB	GENERAL
AUX & Tape 20 Hz to 50,000 Hz +0.5 dB	Power Consumption 150 watts at full power
-1.0 dB	AC Outlet Unswitched 1
Tone Control	Dimensions W 18-7/16" (468 mm)
Bass ±8 dB at 100 Hz	H 5-1/2" (140 mm)
Treble ±8 dB at 10 kHz	D 13-11/16" (348 mm)
Loudness Control (-30 dB) +10 dB at 100 Hz	Weight (Net) 15.9 lb (7.2 kg)
	(Gross) 18.3 lb (8.3 kg)

KR-3090

AMPLIFIER SECTION	FM TUNER SECTION (IHF)
Power Output	Usable Sensitivity 11.2 dBf (2.0 μV)
26 watts* per channel, minimum RMS both channels	50 dB Quieting Sensitivity
driven, at 8 ohms from 20 to 20,000 Hz with no	Mono 15.6 dBf (3.3 μV)
more than 0.1% total harmonic distortion.	Stereo
Both Channel Driven 27 + 27 watts 8 ohms	Signal to Noise Ratio at 65 dBf
at 1.000 Hz	Mono 76 dB
30 + 30 watts 4 ohms	Stereo 72 dB
at 1.000 Hz	Total Harmonic Distortion
Dynamic Power Output 100 watts 4 ohms	Mono 0.2%
Total Harmonic Distortion 0.1% at rated power into 8	Stereo 0.3%
ohms	Frequency Response 20 Hz to 15,000 Hz +1.0 dB
0.05% at 1 watt into 8	−2.0 dB Capture Ratio 1.5 dB
ohms	Image Response Ratio 60 dB
Intermodulation Distortion 0.1% at rated power into	Spurious Response Ratio 75 dB
(60 Hz : 7 kHz 4 : 1) 8 ohms	IF Response Ratio 90 dB
0.05% at 1 watt into 8	Alternate Channel Selectivity 54 dB
ohms	AM Suppression Ratio 55 dB
Power Bandwidth 10 Hz to 50,000 Hz	Stereo Separation Ratio 43 dB at 1,000 Hz
Damping Factor	35 dB at 50 Hz to 10,000 Hz
Input Sensitivity/Impedance/Signal to Noise Ratio	Sub Carrier Product Ratio 40 dB
(IHF A Curve)	Antenna Impedance 300 ohms balanced &
Phono 2.5 mV/50 k ohms/ 77 dB	75 ohms unbalanced
AUX	FM Frequency Range 88 MHz to 108 MHz
Tape 150 mV/45 k ohms/100 dB	AM SECTION
Maximum Input Level for Phono 160 mV (RMS),	
T.H.D. 0.1% at 1,000 Hz	Usable Sensitivity 20 μV
Output Level/Impedance	Signal to Noise Ratio 50 dB
Tape REC (Pin) 150 mV / 100 ohms	Image Rejection
(DIN) 30 mV / 80 k ohms	Selectivity
Frequency Response	GENERAL
Phono RIAA standard curve ±0.5dB	
AUX & Tape 20 Hz to 50,000 Hz +0.5dB	Power Consumption 240 watts at full power
-1.0dB	AC Outlet Switched 1, Unswitched 1
Tone Control Bass	Dimensions
Treble ±8 dB at 100 Hz	H 5-1/2" (140 mm) D 13-11/16" (348 mm)
Loudness Control (-30 dB) , +10 dB at 10 Hz	Weight (Net)
Education Country Country At 10 db at 100 Hz	(Gross) 18.7 lb (8.4 kg)

^{*} Measured pursuant to Federal Trade Commission's Trade Regulation rule on Power Output Claims for Amplifier in U.S.A.

Note: Kenwood follows a policy of continuous advancements in development. For this reason specifications may be changed without notice.

A product of

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